



"Dedicated to Public Service"

THE RADIATOR



W6RHC
IRLP #8170



www.gearsw6rhc.org

P.O.Box 202 Chico, CA 95927

80 YEARS 1939 - 2019

October 2019 Newsletter

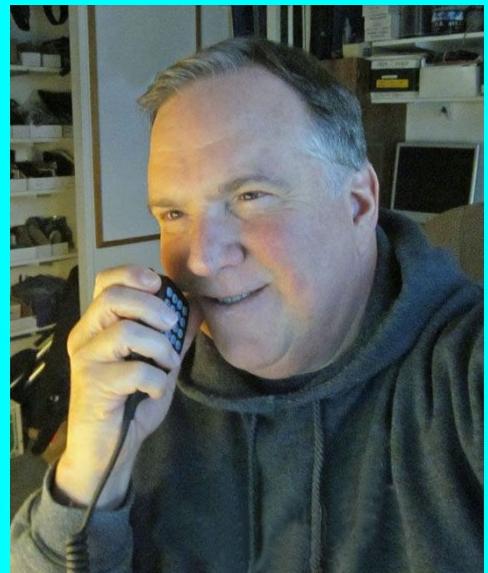
GEARS Founded August 13, 1939

News

Our 80th anniversary Steak Bake was fun. We had a nice turnout and everyone got a good meal. Even the weather cooled off for us.

The work is almost complete on our new repeater project. Several members from both GEARS and GARS visited the site on St. John to begin the preparation work. Thanks very much for the hard work from Michael Favor N6FAV, Michael Bennett K6CEL, Michael A. Ellithorp, KF6OBI, Philip Zabell KI6SMN, Lenus De Ruess and others. This repeater will operate in addition to our current Forest Ranch repeater. All the equipment is here and ready for installation. Michael can use some help, let him know if you can assist. We plan on having this system operational by November.

The new repeater will be a Yaesu Fusion DR-2X, this is similar to our existing Forest Ranch repeater which is a Yaesu DR-X1. In this newsletter, I've included an article about Fusion.



Rick Hubbard is working on holding a Ham Cram prep class for anyone who needs to prepare for the Technician Class test on Saturday February 1, 2020, the day prior to the scheduled VEC Testing. Let him know of anyone who wants to get started in Amateur Radio.

'73
Jim Matthews K6EST
jiminchico@yahoo.com
530-893-3314



Join GEARS on Facebook
www.facebook.com For timely news and additional information.

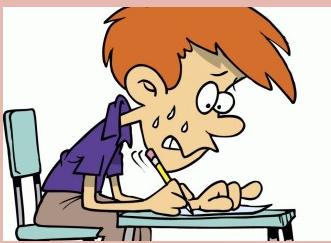
October 2019 Calendar

Sun	Mon	Tue	Wed	Thu	Fri	Sat
		1 7:30pm GEARS Net	2	3 7pm PARS Net 7:30pm Simplex Net	4	5
6 VEC Testing 8pm OARS Net	7 7pm GARS Net 8pm ARES Net	8 7:30pm GEARS Net	9	10 7pm PARS Net 6:30 GARS Meeting 7:30pm Simplex Net	11 7pm OARS Meeting	12 9am Chico Breakfast GEARS Board Meeting
13 8pm OARS Net	14 7pm GARS Net 8pm ARES Net	15 7:30pm GEARS Net	16	17 7pm PARS Net 7:30pm Simplex Net	18 7pm GEARS Meeting	19
20 8pm OARS Net	21 7pm GARS Net 8pm ARES Net	22 7:30pm GEARS Net 7pm ARES Meeting	23	24 7pm PARS Net 7:30pm Simplex Net	25	26 9am OARS Breakfast
27 8pm OARS Net	28 7pm GARS Net 8pm ARES Net	29 7:30pm GEARS Net	30			

VEC Testing, FCC License Exam First Sunday of every even numbered month, at the Butte County Search and Rescue Building. Written test at 2:00 pm. For information or registration call Tom Rider, W6JS 514-9211
Chico Breakfast 2nd Saturday of the month 9 am Farmers Skillet 1818, 690 Rio Lindo Ave, Chico
GEARS Board Meeting 2nd Saturday of the month at Vitalant (formally Bloodsource) following the breakfast.
OARS Meeting Second Friday of the month, 7:00 pm, at St. Paul's Church Parish Hall, 1430 Pine St., Oroville
GARS Meeting Second Thursday of the month, 6:30 pm Lutheran Church Hall, 565 Main St. Artois.
Butte ARES Meeting 3rd Tuesday, Except Nov & Dec. at Chico Veterans Hall 7pm. Contact Dale Anderson, KK6EVX 826-3461 for more information.
GEARS Meeting, third Friday of the month, Butte County Search and Rescue Bldg., Chico. Social hour 6:00 pm, meeting at 7:00 pm.
OARS Breakfast 4th Saturday of the month 9am Gold Country Casino & Hotel, 4020 Olive Hwy, Oroville

NETS:

OARS Club Net Sunday 8pm 146.655 Mhz - PL 136.5
 GARS Club Net:Monday,7:00 pm 147.105 MHz + PL 110.09
 Butte ARES Net Mondays 8pm 145.290 MHz - PL 110.9
 Yuba Sutter Club Net Monday 7pm 146.085 MHz + PL 127.3
 GEARS Club Net Tuesdays 7:30 PM 146.850 MHz - PL 110.9
 PARS Club Net Thursday 7pm 145.290 - PL 110.9
 Simplex Net Thursday 7:30 p.m. 146.52 no tone
 Yuba Sutter ARES Net Thursdays 7pm 146.085 MHz + PL 127.3
 Sacramento Valley Traffic Net Nightly 9:00 PM 146.850 MHz - PL 110.9



Ham Cram Prep Course

Rick Hubbard is putting together a Ham Cram prep class for anyone who needs to prepare for the Technician Class test. Saturday February 1st, 2020, the day prior to the scheduled February VEC Testing. Let him know if you have anyone who might be interested. Time and location to be announced.

For information contact Rick rick.hubbard.email@gmail.com

Fusion

Our new repeater will be a Yaesu Fusion DR-2X, this is similar to our existing Forest Ranch repeater which is a Yaesu DR-X1.

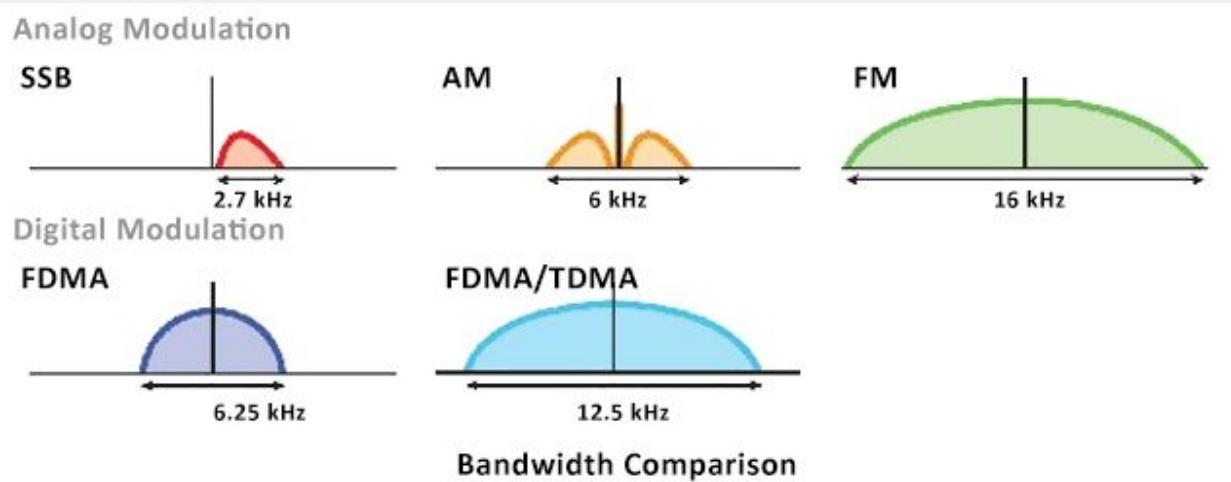
So what is Fusion?

Simply, the Yaesu Fusion system is for both analog and digital communications, both voice and data, including pictures. It utilizes a customized, yet open, C4FM FDMA standard.

C4FM stands for *Continuous Four Level Frequency Modulation*, which is a special type of 4FSK, which is used in conjunction with FDMA - *Frequency Division Multiple Access*. FDMA is the same mode that is used in P25 by public service groups, including First Responders, but it's not compatible.

What sets this new technology apart from other digital voice technologies, such as D-STAR, DMR, P25, NXDN, is its backwards compatibility with standard analog FM.

Here's a look at bandwidths used by different analog and digital modes, including FDMA:



Automatic Mode Select

Every Fusion radio and repeater is aware of the current QSO and its mode, using a feature called Automatic Mode Select. This function instantly recognizes whether the received signal is C4FM digital or conventional FM. The communication mode automatically switches to match the received mode. Even if a digital signal is being used, you can switch to FM communication if radio signals are received from an FM station. This function enables stress-free operation by removing the need to manually switch the communication method each time.

AMS function breaks down into the following operating modes that are fully selectable by the radio user:

AUTO: The radio automatically selects the RX/TX mode from one of the four operating modes (DN, VW, DW and FM) to match the characteristics of the received signal. This is the current AMS operation.

TX MANUAL: The both RX/ TX mode is automatically selected from four operating modes to match the characteristics of the received signal. And if desired to change the TX mode, by pressing the Microphone PTT switch momentarily, the TX mode switch between DN and FM modes.

TX FM FIXED: The RX mode is automatically selected from one of the four operating modes, but the TX mode is fixed to FM.

TX DN FIXED: The RX mode is automatically selected from one of the four operating modes, but the TX mode is fixed to the ‘DN’ (Digital Voice Narrow) mode.

TX VW FIXED: The RX mode is automatically selected from one of the four operating modes, but the TX mode is fixed to the ‘VW’ (Digital Voice Wide) mode.

System Fusion uses a similar DVSI AMBE DSP chip as used in DMR & P25, but newer than what's used in D-STAR.

System Fusion's Four Digital Modes

V/D (Digital Narrow) – Voice+Digital or “V/D” mode

Voice FR (VW) Mode: Utilizes all available bandwidth for high-fidelity voice operation, providing the most crystal clear voice communications.

High Speed Data: Transfer data such as images or text messages at full rate with speeds up to 9600 Bits-per-second

Analog FM Mode: Maintains backwards compatibility with existing Analog FM Equipment, allowing a wide range of users to experiment with System Fusion Digital.

So you will be able to use this repeater with your existing analog FM 2 meter radios, and will be able to communicate digitally using a Yaesu Fusion radio.

For more, watch the video on Fusion: <https://youtu.be/tNjgHUhhMmA>

Amateur Radio’s Secret Service

By Charles Miller Jr, KD4NGA

Now that title may raise some eyebrows but the fact is that there is a “secret service” within Amateur Radio. Not a law enforcement secret service, rather a secret service of specialized Amateur Radio volunteers. These volunteers are among us in our day-to-day Amateur Radio activities. They go the extra mile to provide services to Amateur Radio operators and the hobby itself. I call them “secret” because their roles, and who they are, are not well publicized.

While the ARRL sponsors many different services, there are some at the section and local level that are not well known. In fact, section members are often not even aware these services exist. This can happen because the section leadership is overwhelmed with other duties. Also, they may not fully understand or appreciate the

benefits these various services provided to the hobby.

You may have heard of "Elmers," now sometimes referred to as "mentors." Elmers help the newcomer to the hobby and sometimes the older more experienced ham who wants to learn a new facet of ham radio, such as data modes or satellites. I, for one, sincerely appreciate those who serve as Elmers.

Now the "secret service" I refer to consists of other, less known roles that some hams donate their time to. While there are many different roles supporting ham radio, my focus is on the positions that give the mentor role a deeper, more specialize function. Have you ever heard of a Technical Advisor (TA), Technical Specialist (TS), Technical Coordinator (TC) or Volunteer Consulting Engineer (VCE)? These positions are just a few that help ham radio. Those volunteers help others who have a unique problem or provide support for those experimenting in a current or new mode of radio communications.

Your Technical Teammates

So who are these volunteers? The TA serves as the technical expert in a specific area and is appointed by ARRL HQ for a 1 year renewable term. A TS is a section appointment with no set term. While the TS has some expertise in some area or areas, they are not normally a wizard in all things electronic. That is why it is not uncommon to have several TSs in each section. The TS's primary responsibilities are to provide general technical information and help in resolving RFI issues to hams in his section.

The TC coordinates the types of expertise each TS has. If there is a need for a specific skill, the TC locates a TS with the needed experience and coordinates connecting the TS with the hams requiring assistance. The TC also recruits individuals to serve in various TS positions and remains in contact with individual hams and clubs in his section to help improve the overall technical base.

Often sections either fail to fill the TC position, the TC fails to function or, as in most cases, the service is not well publicized and thus the "secret." For those sections that have a compliment of TSs and a TC, they should make it a point at least annually to make a presentation at club meetings, hamfests and other gatherings about the technical services that are available to hams in the section.

The Volunteer Consulting Engineer (VCE) program helps Amateur Radio operators who want to put up a tower and must meet structural requirements set forth by local zoning authorities. Again this is a program that does not get much press.

A VCE will meet with you to do an initial consultation on the engineering aspects of the problem. If you wish to retain the VCE to work with you on the tower proposal, you and the VCE can decide which professional services will be required and negotiate the fees involved. As part of their negotiated professional services the VCE may act as an expert witness on your behalf, answering the questions of the zoning board and insuring that the tower meets all requirements.

Those Amateur Radio operators who are registered professional structural, civil or mechanical engineers may, if they wish, become a VCE. If interested, please contact ARRL Regulatory Information Manager Dan Henderson, N1ND, for information about joining the VCE program. If you need the assistance of a VCE, you can find one at the VCE Web page.

Now, at least part of the "secret" is out!

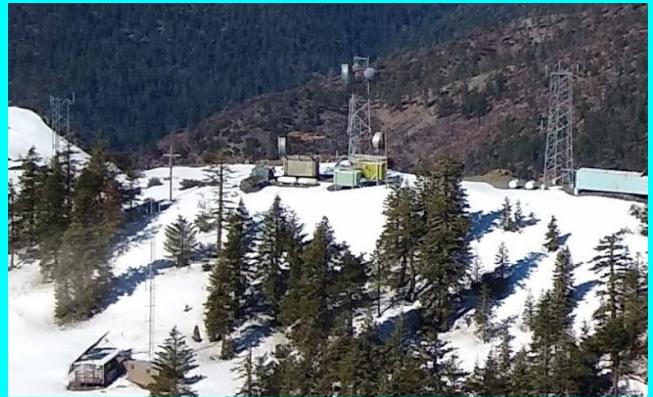
Charles Miller Jr, KD4NGA, an ARRL member, started Amateur Radio back in 1964 in Baltimore. He joined the US Army where he taught electronics and worked repairing AM, FM and microwave radio systems.

Charles holds the positions of Registered Instructor, Volunteer Examiner, VEC, TS and EC in the Alabama section. He enjoys teaching and helping others in the various facets of our hobby. D-STAR is his latest field of experimentation. Charles can be contacted at 3804 Cabana Sq, #101, Mobile, AL 36609-1616, kd4nga@arrl.net.

GEARS / GARS Repeater Project

The Mount St. John repeater project continues. Several members from both GEARS and GARS continue to work on the site at St. John to continue the preparation work. Thanks very much for the hard work from Michael Favor N6FAV, Michael Bennett K6CEL, Michael A. Ellithorp, KF6OBI, Philip Zabell KI6SMN, Lenus De Ruess and others.

The site building has required a large amount of repairs before it's ready for equipment. Our goal is to have the new repeater on the air by November 8th. The anniversary of the Camp Fire. If you'd like to help please contact Michael michaelf@favorsoftware.com



Club Officers:

President.....Jim Matthews, K6EST
Vice-President.....Kent Hastings, WA6ZFY
Secretary.....Stephan Lonis, KM6RSO
Treasurer.....Kathy Favor, K6FAV
Director.....Rick Hubbard, KI6VOS
Director.....Dale Anderson, KK6EVX
Past President.....Tom Rider, W6JS
VEC.....Tom Rider, W6JS

DO YOU HAVE OLD QST MAGAZINES IN SEARCH OF A NEW HOME?

Gene Wright has that future home for your QST's, through his project to place QST Magazines in professional offices throughout Chico. Labels placed on the QST's will advertise the Golden Empire Amateur Radio Society, encourages the readers to consider Ham Radio as an interesting hobby, one of not only fun, but which provides opportunities for many and various community services.

Bring your QST's to Gene at the Club meetings or contact: Gene WA6ZRT 530-519-2519



"I foolishly suggested he try it out first—that was three days ago."

